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Subject: U.S. Serial No. 09/996,301, filed November 21, 2001
Application of: Saad A. Sirohey et al. - Group Art Unit: 2624

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Saad A. Sirohey et al.

Serial No.: 09/996,301

Filed: November 21, 2001

**For: IMAGE TESSELLATION FOR
REGION-SPECIFIC COEFFICIENT
ACCESS**

www.ck12.org

Group Art Unit: 2624

Examiner: Chen, Wenpeng

**Atty. Docket: 120621/YOD/SWA/FAR
GEMS:0180**

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Betty Broyles
Betty Broyles

PRE-APPEAL BRIEF REQUEST FOR REVIEW

In light of the following remarks, Appellants respectfully request review of the Final Rejection in the above-identified application. No amendments are being filed with this Request. This Request is being filed with a Notice of Appeal. In the Final Office Action, the Examiner rejected all pending claims 1-70. Claims 1, 19, 31, 38, 49, and 63 are independent.

Claim Rejection under 35 U.S.C. § 112, First Paragraph

The Examiner rejected claim 17 under 35 U.S.C. § 112, First Paragraph, as failing to comply with the enablement requirement. Apparently, the Examiner misread claim 17 to indicate that the tessellated blocks are *divided* based upon the entropy of each subregion. See Final Office Action, pages 2-5. The Examiner may have mistakenly read a comma after the word “compressed” in claim 17.

Claim 17 recites “wherein compressing comprises dividing each tessellated block into subregions *to be individually compressed based upon an entropy of each subregion.*” (Emphasis added).

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Contrary to the Examiner's interpretation, dependent claim 17 states that the subregions will be *compressed* based upon the entropy of each subregion. Claim 17 does not state that the *division* of the tessellated block is based upon an entropy of each subregion. Indeed, in claim 17, the tessellated block is divided into subregions with *no* express qualification of the division.

As indicated in both the present specification and by the plain language of claim 17, it is the subsequent *compression* of the subregions that is based upon the entropy of the subregions. *See, e.g.*, Specification, pages 12-16. In the text of claim 17, the dependent clause "based upon an entropy of each subregion" modifies the adjacent word "compressed" and not the remote word "dividing" as apparently construed by the Examiner. *See* Final Office Action, pages 2-5. A common tenet of sentence construction is that descriptive or subordinate phrases, such as "based upon an entropy of each subregion," are ordinarily placed in close proximity to the word modified or described. Moreover, again, the present specification further supports this interpretation of claim 17 that it is the compression of the subregions (not the division of the tessellated block into subregions) that is based upon the entropy of a given subregion. *See, e.g.*, Specification, pages 12-16. Accordingly, Appellants respectfully assert that claim 17 is enabled.

Claim Rejections under 35 U.S.C. § 102

In the Office Action, the Examiner rejected claims 1-15, 17-34, 36-46, 48-53, and 62-70 under U.S.C. § 102(e) as anticipated by Andrew (U.S. Patent No. 6,763,139). Appellants respectfully traverse this rejection.

Legal Precedent

Anticipation under section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). The prior art reference must show the *identical* invention "*in as complete detail as contained in the ... claim*" to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (emphasis added).

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In addition, the prior art relied on by the Examiner as anticipatory must be enabling. *See In re Hoeksema*, 3999 F.2d 269, 158 U.S.P.Q. 596 (C.C.P.A. 1968). Mere naming or description of the subject matter in a reference is insufficient. *Elan Pharm., Inc. v. Mayo Foundation for Medical and Education Research*, 346 F.3d 1051, 1054, 68 U.S.P.Q.2d 1373, 1376 (Fed. Cir. 2003). Moreover, an unwitting disclosure which is accidental and unappreciated does not anticipate the present claims. *See Schering Corp. v. Geneva Pharm., Inc.*, 339 F.3d 1373 (Fed. Cir. 2003); *Eibel Process Co. v. Minnesota & Ont. Paper Co.*, 261 U.S. 45 (1923); *Tilghman v. Proctor*, 102 U.S. 707, 26 L.Ed. 279 (1880).

Further, the pending claims must be given an interpretation that is reasonable and consistent with the specification. *See In re Prater*, 415 F.2d 1393, 1404-05, 162 U.S.P.Q. 541, 550-51 (C.C.P.A. 1969); *see also* M.P.E.P. §§ 608.01(o) and 2111. Indeed, the specification is "the primary basis for construing the claims." *See Phillips v. AWH Corp.*, No. 03-1269, -1286, at 13-16 (Fed. Cir. July 12, 2005) (citations omitted).

The Andrew Reference Does Not Disclose Lossless Wavelet Decomposition

Independent claims 1, 19, 31, 49, and 63 recite, *inter alia*, "lossless wavelet decomposition." Independent claim 38 recites, *inter alia*, "lossless integer wavelet decomposition." Quite the opposite, the Andrew reference discloses a discrete wavelength transform (DWT) decomposition that utilizes a floating point scheme, whereby floating point values of the coefficients are truncated. *See* col. 5, line 7 - col. 6, line 11; col. 10, lines 23, 37; col. 7, lines 4-33; col. 18, lines 56-59; Fig. 1. In operation, the truncated portions of the coefficients are *irreversibly lost*. *See* col. 7, lines 4-33; col. 18, lines 56-59.

In the Final Office Action, the Examiner disagreed, stating that Andrew teaches both "lossy wavelet decomposition" and "lossless wavelet decomposition." Final Office Action, page 3 (emphasis added). In support of the contention that Andrew teaches *lossless* wavelet decomposition, the Examiner pointed to column 6, lines 7-11 of the Andrew reference, which reads "if a Haar basis set is used for the DWT (i.e. Haar Transform) an exact reconstruction (or

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synthesis) of a group of pixels from corresponding coefficient, in the frequency domain, is *possible*." (Emphasis Added).

However, Appellants note that a Haar Transform (which employs a floating point scheme) can only provide for an exact reconstruction if, by complete chance, the numerical values in the Haar transform are precise even numbers (so, therefore, the truncation causes only a loss of zero decimal values). Those skilled in the art would recognize that a Haar transform would be of the form $(a+b+c+d)/2$ (e.g., for averaging of pixels as taught by Andrew). Clearly, such algorithms can only return an integer value (i.e., a valued that will not be truncated) if the sum of the numerator happens always to be even. This is even more unlikely for subsequent levels of decomposition (e.g., a sum of 30 will be even for the first level, but may lead to a non-integer quotient in subsequent levels, depending upon the other values which it combined). In sum, a Haar basis set can only *accidentally* provide for an exact reconstruction.

Further, the Andrew reference clearly *does not enable* the use of the Haar transform to provide for an exact reconstruction, accidental or otherwise. Instead, Andrew mentions the use of the Haar transform as an aside in a single sentence with no disclosure as to how to utilize or modify such a transform to reliably provide for full reversibility. *See Andrews*, col. 6, lines 7-11; *see also Elan Pharm., Inc.*, 68 U.S.P.Q.2d 1373, at 1376 (explaining that the asserted anticipating reference must provide an enabling disclosure of the desired subject matter; mere naming or description of the subject matter is insufficient).

Lastly, Appellants note that present specification explains that the error of the Haar transform with regard to reversibility is due to the imprecision of floating point operations. *See Specification*, page 27, lines 9-27. Therefore, the present technique as disclosed in the present specification provides for "lifting" of the Haar transform (and other wavelet transformations) to give an integer-based transformation with full reversibility. *See Specification*, page 27, lines 9-27. One of ordinary skill in the art would understand that the specification explains that the claimed "*lossless* wavelet decomposition" is a decomposition that provides for exact reconstruction (full reversibility) and does *not* use a floating point scheme or a scheme that *only*

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provides for the *possibility* of an exact reconstruction. See *Phillips*, at 16 (explaining that one should rely *heavily* on the *written description* for guidance as to the meaning of the claims).

For these reasons, the Andrew reference cannot anticipate claims 1, 19, 31, 38, 49, and 63 or their dependent claims.

The Andrew Reference Does Not Disclose Lossless Integer Wavelet Decomposition

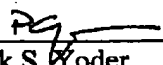
Independent claim 38 recites "lossless *integer* wavelet decomposition." In stark contrast, the Andrew reference discloses a quantization or floating point decomposition. See, e.g., col. 18, lines 21-64. Indeed, the Andrew reference discloses that its transform coefficients are *assumed* to be represented in a binary integer form. See col. 10, lines 23-27. Thus, because the coefficients are only treated as integers, the decompression is clearly floating point and not integer-based. After all, Andrew would not require that the coefficients be *assumed or treated* as integers if the coefficients were, in fact, integers. It is plain that the decimal portions of the non-integer coefficients (which are only assumed to be integers) are *truncated and irreversibly lost*, and would not be available during any subsequent processes, e.g., entropy encoding and/or Huffman encoding. See e.g., col. 5, lines 7- col. 7, line 33. Accordingly, for this reason as well, the Andrew reference cannot anticipate independent claim 38 or its dependent claims.

Request Review of Final Rejections

For the above reasons, Appellants respectfully request review of the Final Rejections prior to filing of an Appeal Brief in the present application.

Respectfully submitted,

Date: September 29, 2005


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